



EXPERIMENT NO. 3 ARCHIMEDES PRINCIPLE

INTRODUCTION:

Archimedes Principle states that any body submerged in a fluid is acted upon by a vertical force called buoyant force equal to the weight of the displaced fluid.

OBJECTIVE:

This activity aims to determine to measure the buoyant force acting on a body.

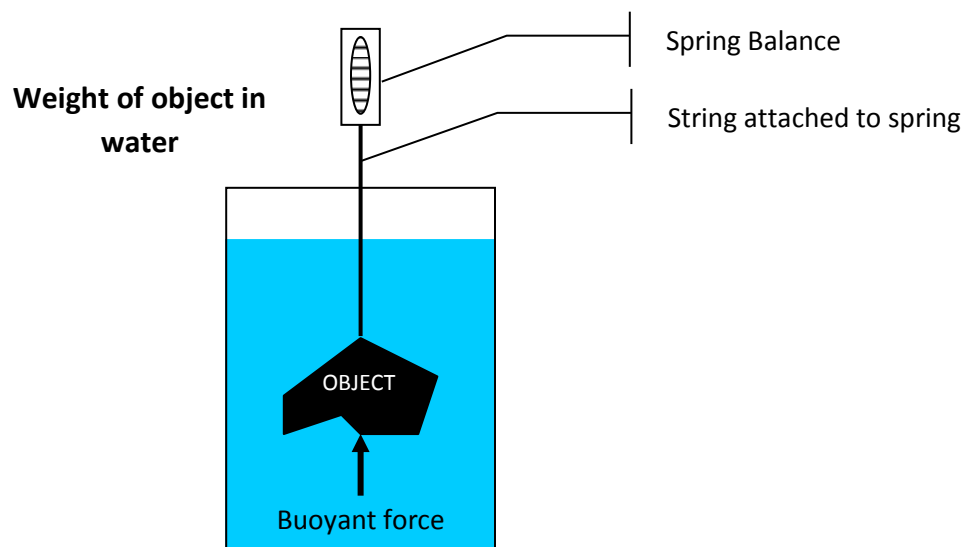
APPARATUS AND SUPPLIES

Any irregularly-shaped solid object
Spring balance
Beaker/graduated cylinder and dropper

PROCEDURE

1. Get the weight of the object and record.
2. Tie a string on the object so that it can hang or suspend when placed in the spring balance. The string should be of negligible weight.
3. Suspend the object on the spring balance and make sure that the object is totally submerged in water. Water shall be placed in a deep container which is located below the spring balance.
4. Determine the new reading in the spring balance. This reading will indicate the weight of the object in water.
5. Determine the volume of the object by ordinary geometrical means or by water displacement method.

DISCUSSION:



DATA AND RESULTS:**Table 3.1 – Determination of Buoyant Force**

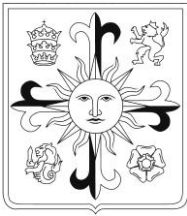
	Object 1	Object 2	Object 3
Weight of object in air, g			
Weight of object in water, g			
Weight in air – weight in water, g			
Observed Buoyant Force, N			
Volume displaced, cm ³			
Calculated Buoyant Force = Unit weight of water x Volume displaced, N			
%Error = $\frac{ \text{Calculated Buoyant Force} - \text{Observed Buoyant Force} }{\text{Calculated Buoyant Force}}$			

PRECAUTIONS

1. Use irregularly-shaped object that are non-absorbent and with significant weight.
2. Make sure that the object is totally dry when the weight in air is observed.
3. The recommended order of observation, weight in air, volume displacement then weight in water. This is to ensure that there is a minimal error in the volume displaced.

AFTER THE EXPERIMENT

1. Empty the tank/pail used in getting the volume in water.
2. Return the clean beaker, graduated cylinder and balance.



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ARCHIMEDES PRINCIPLE

Year and Section		Date Started	
Group Number		Date Finished	
Group Members		Date Submitted	

3.1 DATA AND RESULTS:

Table 3.1 – Determination of Buoyant Force

	Object 1	Object 2	Object 3
Weight of object in air, g			
Weight of object in water, g			
Weight in air – weight in water, g			
Observed Buoyant Force, N			
Volume displaced, cm ³			
Calculated Buoyant Force, N			
Percent Error, %			

3.2 FORMULAS AND COMPUTATIONS:

3.3 DRAWINGS/SKETCHES/DIAGRAMS/GRAPHS:

3.4 SOURCES OF ERRORS:

3.5 REMARKS/CONCLUSION: